



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,392	04/08/2005	Fumitsugu Fukuyo	46884-5318	1798
55694 7590 05/27/2009 DRINKER BIDDLE & REATH (DC) 1500 K STREET, N.W. SUITE 1100 WASHINGTON, DC 20005-1209				
EXAMINER ULLAH, ELIAS				
ART UNIT 2892		PAPER NUMBER		
MAIL DATE 05/27/2009		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/507,392

Applicant(s)

FUKUYO ET AL.

Examiner

ELIAS ULLAH

Art Unit

2892

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-19, 21-39, 41-46 and 62 is/are pending in the application.
- 4a) Of the above claim(s) 57-62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-19, 21-39, 41-46 and 48-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/19/2008, 9/16/2008, 5/18/2009, 2/6/2009, 4/22/2009
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to an amendment filed on 3/06/2009.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 14-19, 21-39, 41-46, 48-56 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly added limitations in the all independent claims e.g. 1-19, Applicants claimed "neither melting on a laser light incident face of the object nor forming a groove due to melting on the laser light incident face" subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art at the time the application was filed.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 14-19, 21-39, 41-46, 48-56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. All the independent claims e.g. 1-19, Applicants claimed "neither melting on a laser light incident face of the object nor

forming a groove due to melting on the laser light incident face". However, Applicant failed to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Furthermore, it appears that the above claimed limitations direct to a negative limitation and the negative claimed limitation that rendered the claim indefinite because it was an attempt to claim the invention by excluding what the inventors did not invent rather than distinctly and particularly pointing out what they did invent. In re Schechter, 205 F.2d 185, 98 USPQ 144 (CCPA 1953). See MPEP 2173.05(i).

5. For purpose of examination, Examiner assumes Sawada shows a laser inherently anticipated above indefinite claimed limitations.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 14, 18-20, 23, 26, 31-33, 41, 45-48, 50-56, are rejected under 35 U.S.C. 102(b) as being anticipated by Sawada (US. 2002/0115235) of record.

With regard to claims 14,18-19, 23, 26, 41,45-46, 48, 50-56, Sawada shows a laser processing method (Figs. 12(A)-14(C) comprising the step of irradiating an object to be processed comprising a substrate (W Fig. 12(A) and a laminate part (S2, Fig. 12(C)) disposed on a front face of the substrate (W) with laser light (L, Fig. 14(A)) while

positioning a light-converging point at least within the substrate (W), so as to form a modified region (G, Fig. 14(B)) due to multiphoton absorption at least within the substrate, and causing the modified region to form a starting point region for cutting the inside the object (Fig. 14(C)) in the object inside by a predetermined distance from the laser light incident face of the object [0065-0067] and laminate part having at least one semiconductor device [0004] and cutting the substrate (W) and the laminate part (S2) along a line when a fracture generated in a thickness direction of the substrate from the starting point region for cutting reaches a front face and a rear face of the object (Fig. 12(A) Fig. 12(D)).

The recitation of "so as to form a modified region due to multiphoton absorption at least within the substrate neither melting on a laser light incident face of the object nor forming a groove due to melting on the laser light incident face, and causing the modified region to form a starting point region for cutting the object n inside the object by a predetermined distance from the laser light incident face of the object" is substantially identical to the laser and substrate recited in Sawada in [0060-0066] and claimed properties or functions are presumed to be inherent. Or where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

With regard to claim 31, Sawada shows the substrate (W) and the laminate part (S2) are a plurality of substrates formed while abutting (Fig. 14(C)).

With regard to claims 32-33, Sawada shows the substrate (W) and the laminate part (S2) are a plurality of substrates attached to each other while forming a gap (G, 12 (C)) there between.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 15-17, 21-22, 24-25, 27-30, 34, 36-39, 42-44, 49, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawada (US 2002/0115235 A1) in view of Piwczyk et al. (6,376,797) all of record.

With regard to claims 15-17, 21, 24-25, 27-28, 37-39, 42-44, 49 Sawada teaches a substrate dividing method (Figs. 12(A)-14(C)) comprising the steps of irradiating a substrate (W, Fig. 12(A)) and a laminate part (S2, Fig. 12(C)) disposed on front face of

the substrate (W) with laser light (L, Fig. 14(A)) while positioning, and causing the modified region modify region including a crack region [0016] and molten process region [0015] within the substrate to form a starting point region for cutting along a line along which the substrate should be cut (Fig. 14(C) in the substrate inside by a predetermined distance [0066] from a laser light incident face of the substrate; and grinding the substrate (Fig. 12(D)) after the step of forming the starting point region (G, Fig. 12(B)) for cutting such that the substrate attains a predetermined thickness (t_2 , Fig. 12(D)) and a pulse width of 1 μ s or less [0069] and wherein the substrate surface formed with at least one semiconductor device [0010 and 0004] and cutting the substrate (W) and the laminate part (S2) along a line when a fracture generated in a thickness direction of the substrate from the starting point region for cutting reaches a front face and a rear face of the object (Fig. 12(A) Fig. 12(D)).

The recitation of "so as to form a modified region including a crack region at least within the substrate neither melting on a laser light incident face of the object nor forming a groove due to melting on the laser light incident face, and causing the modified region to form a starting point region for cutting the object inside the object inside by a predetermined distance from the laser light incident face of the object" is substantially identical to that of the claims and irradiating laser and substrate recited in Sawada in [0060-0066] and [0071] is substantially identical and claimed properties or functions are presumed to be inherent. Or where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or

obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

Sawada fails to disclose specifically a light-converging point within the substrate under a condition with "a peak power density of at least 1×10^8 (W/cm²) at the light-converging point", so as to form a modified region including a crack region within the substrate.

However, Sawada discloses a general laser light to from a modified region [0060-0067]. An additional ref. is provided for supporting the facts "under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point" (US Ref. US 6,376,797 in col. 3, lines 25-50 for mere facts). Accordingly, it would have been obvious to one of ordinary skill in art to use teaching Sawada in the range as claimed, because it has been held that where the general conditions of the claims are discloses in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. MPEP 2144.05.

With regard to claim 22, Sawada disclose the laser light irradiating the substrate while positing the light converging point there within irradiates the substrate for front face (Fig. 12(b)) instead of the rear face thereof. However, selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results; In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946); In re Gibson, 39 F2d 975, 5 USPQ 230 (CCPA 1930). MPEP 2144.04.

With regard to claims 27-28, Sawada teaches the modified region (G) is formed within the substrate (W) which that the modified region shifts from the center position

of the object in the thickness toward a rear face of the substrate (Figs. 12(A)-12(D)) and applying stress to the object from the laminate part side [0011 wherein pellets P are peeled from the adhesive sheet S2].

With regard to claim 29, Sawada teaches the modified region (G), is formed within the substrate such that the modified region shifts from the center position of the object in the thickness direction toward the front face of the substrate (Figs. 12(A)-12(D)).

With regard to claim 30, Sawada teaches applying stress to the object from the laminate part [0011 wherein pellets P are peeled from the adhesive sheet S2] instead of opposite side of the laminate part. However, selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results; In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946); In re Gibson, 39 F2d 975, 5 USPQ 230 (CCPA 1930). MPEP 2144.04.

With regard to claim 36, Sawada teaches the object comprises the substrate and the laminate part which is a laminated functional film (S2).

3. Claims 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawada in view of Radojevic et al. (US 2003/0010275) all of record.

With regard to claims 34-35, Sawada teaches the laminate part includes a first laminate part (S2) on the front face of the second laminate part (S1) disposed on the front face for the first laminate part. But, Sawada fails to teach the substrate is a glass substrate and laminate part is an oxide film.

Radojevic et al. teaches the substrate is a glass substrate 1301 in (Fig. 11) and laminate part is an oxide film 1203 in (Fig. 11). At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use the substrate is a glass substrate and laminate part is an oxide film teaching of Radojevic et al. in the method of cutting a substrate of Sawada, because such process helps to create good bonding process between substrate and with subsequent layer such as adhesive layer as taught by Radojevic et al [0079-0080].

Response to Arguments

4. Applicant's arguments filed on 3/6/2009 have been fully considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIAS ULLAH whose telephone number is (571)272-1415. The examiner can normally be reached on weekdays, between 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thao Le can be reached on (571) 272-1708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elias Ullah/
Examiner, Art Unit 2892

/Trung Dang/
Primary Examiner, Art Unit 2892

5/19/09